



Next Generation

Marshall, Goddard Pick Firms to Study 21st Century Telescope

NASA has awarded \$17 million to several companies to study key enabling technologies for the development of the Next Generation Space Telescope (NGST). The Goddard and Marshall Centers will procure architecture studies

and lightweight mirror technology development, respectively.

Goddard is leading advanced studies of the state-of-the-art telescope for NASA's Office of Space Science as part of the Astronomical Search for our Origins

program. NGST is an infrared-optimized, large aperture telescope for conducting early universe studies.

Goddard has selected TRW Space & Electronics Group in Redondo Beach, Calif. and Ball Aerospace & Technologies Corp. in Boulder, Colo. to perform 18-month conceptual system studies, which will result in the

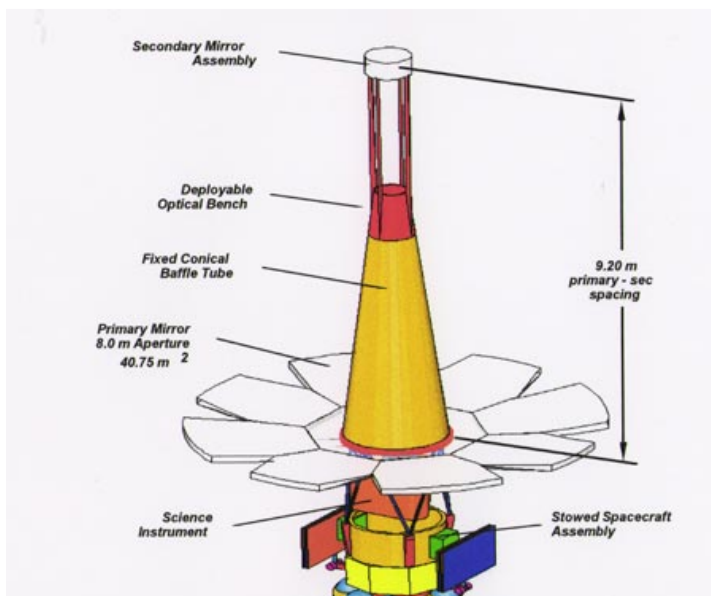
exploration of multiple solutions for the development of the NGST. These contracts are \$3.5 million each.

Marshall selected the University of Arizona's Steward Mirror Laboratory, Tucson, Ariz. and Composite Optics Inc., San Diego, Calif., to design, build, and test a two meter-class lightweight mirror system demonstrator. These contracts are approximately \$5 million each.

The new technology must achieve major reductions in weight and operate at very low temperatures. The proposed mirrors must be 1.5 to 2 meters in diameter with an approximate total weight of between 44 and 99 pounds (20 and 45 kilograms). They also must be tested to operate between room temperature and cryogenic temperatures to assure that their scientific performance can be maintained over this full temperature range.

According to John Humphreys, manager of the Marshall NGST studies, "The weight limitations for the mirrors are

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Optical Telescope Assembly in deployed configuration.

August 7 Selected for Discovery Launch on STS-85 Mission

Space Shuttle Program managers have set Aug. 7 as the launch date for the next Shuttle mission, to deploy and retrieve a science satellite and test a small robotic arm identical to one that will be used on the International Space Station's Japanese Experiment Module.

The six-member crew, commanded by Curtis L. Brown, Jr., includes as the payload commander, former Huntsvillian and Marshall Center engineer Dr. Jan Davis. On her third Shuttle mission, Davis will use Discovery's robot arm to deploy and retrieve the CRISTA-SPAS, which will fly independently of the Shuttle for approximately 48 hours.

Marshall Center will also be represented on the flight by the inclusion of protein crystal growth experiments on the list of Discovery's payloads. The Protein Crystallization Apparatus for Microgravity, one of several devices developed to grow large numbers of protein crystals in space for later evaluation on Earth,

will be carried on this mission.

Protein crystals are used in basic biological research, pharmacology and drug development. Dr. Dan Carter of New Century Pharmaceuticals, Huntsville, Ala., is principal investigator for the STS-85 experiments.

The crystallization apparatus uses vapor diffusion to grow crystals, relying on water vapor pressure differences within a chamber to create optimum growth conditions. Little crew

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STS-94 Crew to Visit Here Tuesday

The STS-94 Microgravity Science Laboratory -1 crew members will visit the Marshall Center on Aug. 5 at 1 p.m. in Morris Auditorium. They will share mission highlights and answer questions. Employees should be seated by 12:45 p.m.

Marshall Groundskeeper to Retire and Carry Talents Home

When the Marshall Center was established in 1960, Homer Phillips had already been working on Redstone Arsenal for almost 20 years.

In fact, the 76-year-old groundskeeper started working on the Arsenal virtually at the start of its existence as an Army facility, around the beginning of World War II.

"I started working on the Arsenal when I was 18 years old," said Phillips. "I have been here off and on since then doing the same work."

In recent years, passersby who scurry through the parking lot to enter buildings in the 4200 complex — on any given day, in any type of weather — may or may not notice Phillips. Phillips, however, nods to some, speaks to others and continues to go about his work, making sure the flowerbeds are weeded, the bushes and trees are trimmed and the grass is watered.

Now, though, a remarkable "era" is about to end, with Phillips' last day being Thursday. He plans to retire and confine his skills and energy to his 60-plus acres of land in the New Hope area.

Rusty Denton of Crabtree and Son, Inc. (CSI), Phillips' supervisor, said that he has known Phillips as long as he has worked here — "only" 18 years.

"It has been both a pleasure and a privilege to know and work with someone like Homer," said Denton. "We have never had any complaints about him. He has always been given a free hand to do as he sees fit. He really knows how to take care of plants."

When asked what will be most memorable about coming to work at Marshall, Phillips jokingly said, "when I had to hitchhike to work." He explained that he doesn't drive anything but a tractor and has always relied on others for transportation.

Phillips said that he is really looking forward to retirement, even though some things will stay the same. He'll be "moving on," but plans to continue doing what he enjoys most, cultivating.



Groundskeeper Homer Phillips trims the bushes for what may be the last time around the Marshall Center. Phillips is retiring after more than 50 years of working on Redstone Arsenal. *Photo by Emmett Given*

Crawford Named Deputy in Marshall's Personnel Office

Vicky Crawford has been named Deputy Director of the Personnel Office in the Human Resources and



Vicky Crawford

Administrative Support Office. Prior to this, she served as chief of the Personnel Management Division.

Crawford joined the Marshall Center as a student assistant in 1964 and has held increasingly responsible positions across a wide spectrum of personnel disciplines, including assignments in recruitment, staffing, classification, employee relations, and personnel management.

She was appointed in 1990 to the position of chief of the Personnel Management Division.

Employees Offered Buyout for Early Retirement, Separation

Center employees were advised in a letter Monday that Marshall has been authorized to offer retirement or separation incentives of up to \$25,000 for 200 employees during the period Aug. 1, 1997 through Feb. 3, 1998. The deadline for submission of applications is Nov. 14, 1997. If a separation date prior to Nov. 14 is requested, the deadline is two weeks before the desired date. Should more than 200 employees apply for the buyout, approval will be based on Federal service computation date. To assist interested employees in making their decisions, question-and-answer sessions and group counseling opportunities will be held Aug. 6 and 7 in Morris Auditorium.



Students in the Pathways to Freedom Program are briefed by Marshall employee Johnnie Clark during a tour of the Center last week. The Pathways to Freedom Program, an educational and historical studies component of the Rosa and Raymond Parks Institute for Self-Development, is a four-week summer program. Historic locations include parts of the Underground Railroad and sites of civil rights movement events. *Photo by Terry Leibold*

Snoopy Awards Honor Three

STS-87 Commander Kevin Kregel presented Silver Snoopy Awards to Marshall Center employees last week. The award honors those who have made outstanding contributions to mission success.

Photos by Terry Leibold



Kregel with recipient Elizabeth Paschall, AI51

MMA Awards Four Scholarships

The Marshall Management Association has awarded four scholarships to two high school seniors entering an accredited college or university in the fall and two to freshmen who are presently enrolled in an accredited college or university.

The scholarship recipients in the areas of science/engineering/mathematics are Neelaksh Varshney (high school senior), son of Shashi Varshney; and Stephanie Nemecek (freshman), daughter of Larry Nemecek. Scholarship recipients in the areas of business/teaching/other are Mindy Hicks (high school senior), daughter of William Hicks; and James Wiser (freshman) son of James N. Wiser.



STS-87 Astronauts Kevin Kregel (left) and Kalpana Chawla train on the middeck glovebox experiments for the Marshall-managed United States Microgravity Payload (USMP-4) mission that is scheduled to launch in November. The training occurred in Marshall's Microgravity Development Laboratory.

Photo by Emmett Given



Kregel presents Silver Snoopy Awards to Marshall employees Cedreck Davis (left), AB37, and Byron Rouse, AB42.

Next Generation Telescope

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driven by the requirement for the NGST telescope to be placed in orbit by an efficient, low-cost launch vehicle. This proposed telescope is intended to extend the capabilities of current orbiting telescopes as well as be significantly larger and capable of operating at cryogenic temperatures," Humphreys said.

"Building the NGST mirrors is a big challenge...to design something that will operate at the required temperatures and maintain its figure. We have little information on what happens to materials going from room temperature to the kind of temperatures required for the NGST," Humphreys added.

Scientifically, the orbiting observatory will fill in the knowledge gap between the early universe, filled with the primordial seeds of galaxies as seen by the Cosmic Background Explorer, and the universe as seen by the Hubble Space Telescope, populated by discrete stars and galaxies. To achieve the necessary levels of sensitivity to observe the birth of stars and galaxies and the first supernovae, the NGST will be operated beyond Earth orbit, with optics and detectors cooled to a temperature of -369 to -405 degrees Fahrenheit (30 to 50 Kelvin).

"It is a major technical challenge," Humphreys concluded. "It's going to be very difficult, but it is possible."

STS-85 Space Shuttle Mission

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involvement is required with the apparatus.

On STS-85, a total of 630 specimens will be transported to orbit using 10 cylinders — four in a cabin-temperature locker, and six within a Single-locker Thermal Enclosure System — a commercially derived refrigerator incubator module. After the mission, the trays will be returned to the Marshall Center and then to Carter for study.

Employee Ads

Miscellaneous

- ★ 1973 Starcraft pop-up camper, sleeps 6, electric refrigerator, air conditioning, gas, stove, canopy, \$1,250. 883-6416.
- ★ Body by Jake ab machine, \$50 firm. 882-7084
- ★ Wood dining room table with six chairs, \$60. 650-0919
- ★ Van cover for up to 16 ft. mini van, cotton flannel, \$50. 882-9417.
- ★ AKC Maltese, \$350; AKC miniature apricot Poodles, \$200; AKC brindle/white Shih-Tzus, \$200. 753-2278
- ★ Six 12 oz. cans of Riz freon and auto installation hose, \$10. 881-6049
- ★ 1991 Dynasty Elan, 17ft., trailer, suncover, skis, accessories, kept in dry storage, \$6,995. 881-1090
- Power in-dash CD player, 30Wx4, wireless remote control, detachable face, \$145. 830-1346

Vehicles

- ★ 1993 Explorer, 2 door, sport, pw, pdl, C/D, teal, 61K miles, \$11,000. 837-0088
- ★ 1994 Toyota pickup, chrome wheels, A/C, cassette, 5-speed, 59K miles, \$7,695. 880-6928
- ★ 1991 Oldsmobile Delta 88, Brougham, 80K miles, one owner, \$5,000. 883-5754
- ★ 1995 Chevrolet Lumina, LS, 4-door, 38K miles, power, ABS, alloys, cruise, cassette, remote entry, \$12,500. 751-2131
- ★ 1993 Ranger XLT, king cab, 58K miles, 5-speed, \$8,500; 1976 J10 4x4 truck, v8, auto, \$1,500. 837-0085

- ★ 1988 Ford Bronco II, 123K miles, \$3,200. 464-5008

Wanted

- ★ Tennis racket, minimum 100 si, maximum 4 1/2 inch grip, good quality. 883-2757

Free

- ★ Cocker Spaniel, AKC registered, house dog, eight years old, trained, neutered, shots. 539-3166

Center Announcements

- ☛ **Toastmasters**— Redstone Toastmasters Inter-national will meet every Tuesday at 6 p.m. in Morrison's Cafeteria in Madison Square Mall. For more information call 461-0476.
- ☛ **Blue Cross/Blue Shield** — The federal representative from Blue Cross/Blue Shield will be at the Center today from 9 to 11 a.m. in Building 4202, Room B-108 to assist employees with questions.
- ☛ **Luau Dinner Dance** — The MARS Ballroom Dance Club Luau will be held in the VBC West Hall with music by the Directors Band. Attire is casual. Social begins at 6:30 p.m., followed by a buffet dinner at 7. Tickets are \$18 per person with a \$3 discount for members. Tickets may be purchased from Tamara Landers (4-6818), Pat Sage (4-5427), Ed Ogozalek (837-1486), and Bob Williams (4-3998). Call Woody Bambara (650-0200) for a table for eight.
- ☛ **Stop Abuse** — Aware of waste, fraud or abuse? Telephone the Marshall

Office of Inspector General at 4-9188 or send complaints to Mail Stop M-DI. Confidentiality will be maintained.

- ☛ **NBS Get Together** — The staff of the Neutral Buoyancy Simulator (NBS) invites all former NBS divers, staff members, and families to the Redstone Arsenal Civilian Recreation area Friday Aug. 1 at 4 p.m. Bring food, drinks and NBS photos and stories to share with everyone. For more information contact Paul Dumbacher at 4-3238.

Job Opportunities

- CPP 97-72-SH, AST, Flight Activity Planning, GS-801-14, S&E, Mission Operations Lab, Operations Engr Div, Data Systems Branch. Closes Aug.**
- CPP 97-84-DC, AST, Liquid Propulsion Systems, GS-861-14, S&E, Space Trans Sys Ch Engrs, Space Shuttle Main Engine, Turbomachinery Development. Closes Aug. 7.**
- CPP 97-85-SH, AST, Liquid Propulsion Systems, GS-861-14, S&E, Propulsion Lab, Component Dev. Div., Turbomachinery & Control Mechanisms Br. Closes Aug. 1.**
- CPP 97-87-SH, AST, Solid Propulsion Systems, GS-861-14, S&E, Propulsion Lab, Engine Systems Div, Combustion Physics Branch. Closes Aug. 1.**
- CPP 97-95-TH, Configuration Management Specialist, GS-301-7, S&E, Systems Analysis and Integration Lab, Configuration Mgmt Div, Project Support Br. Closes Aug. 8.**

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